

**PHASE II REPORT REVIEW  
FOR  
PROBLEM CONFIRMATION/QUANTIFICATION  
SHEPPARD AIR FORCE BASE  
TEXAS**

*TX 3571524161 Superfund*

**AUGUST 1986**

**R E M II**

**PERFORMANCE OF REMEDIAL RESPONSE  
ACTIVITIES AT UNCONTROLLED  
HAZARDOUS WASTE SITES**

**U.S. EPA CONTRACT NO. 68-01-6939**

**CAMP DRESSER & MCKEE INC.  
PRIME CONTRACTOR**

**9337806**



PHASE II REPORT REVIEW

FOR

*Aug:86*

PROBLEM CONFIRMATION/QUANTIFICATION

~~SHEPPARD AIR FORCE BASE~~

TEXAS

~~TX-357-15-241-6-1~~ (*Superfund*)  
*XRef SAVV1*

AUGUST 1986

Work Assignment No.: 91-6K00

Document Control No.: 194-TS1-RT-DDYH-1

REVIEW OF CONFIRMATION/QUANTIFICATION STUDY - STAGE I  
SHEPPARD AIR FORCE BASE, TEXAS

1.0 INTRODUCTION

This document presents the results of the Federal Facilities Review - Phase II. The purpose of this review phase is to evaluate the findings and recommendations made in a Phase II - Problem Confirmation/Quantification Report. This Problem Confirmation/Quantification Report is the second phase of the Department of Defense's Installation Restoration Program (IRP). The purpose of this phase is to determine if environmental contamination has resulted from waste storage, use, and disposal on Department of Defense (DOD) property. In addition, an investigation is made to determine the magnitude and extent of contamination, the identification of environmental consequences of migrating pollutants, and the recommendation of additional investigations to identify the magnitude, extent and direction of movement of discovered contaminants. This review has been prepared by Camp Dresser & McKee Inc. (CDM) in response to Contract No. 68-01-6939/194/TS1. This contract provides for technical assistance to Region VI of the U.S. Environmental Protection Agency (EPA), specifically regarding the Phase II report on Sheppard Air Force Base (AFB), Texas prepared by Radian Corporation.

This report review is divided into two sections. The first section discusses our comments in general to the overall work performed during the confirmation/quantification study. The second section discusses in detail our comments on specific parts of the confirmation/quantification report.

2.0 GENERAL COMMENTS

CDM has several general comments about the report. The report provided little information on regional hydrogeology which would be useful in assessing the facility. For example, regional groundwater levels and flow direction were not included. The conclusions and recommendations from many sites were vague. A definitive program for future work was not provided.

Many of the conclusions for site contamination did not have supportive information and in places were contradictory.

The approach for wells in this dry area with abundant clay was a mistake. Migration potential is probably low and large volumes of leachate flow is not anticipated. The contaminants in this environment would be found easier with pressure-vacuum lysimeters.

Many waste oils and solvents were burned at the site. Waste oils at Superfund sites frequently have associated PCBs. There was no analyses for PCB at any sites. CDM feels limited PCB analyses should be conducted.

None of the maps in the report provided topography of the study area. This makes it difficult to evaluate the appropriateness of sampling locations.

### 3.0 SPECIFIC COMMENTS

Page 9                      Reference is made to "Near Surface Water Hydrocarbons".

2nd Paragraph          The report writers probably intended it to read near surface soil hydrocarbons, but we are not sure.

Page 2-18                The discussion of regional groundwater occurrence is

Last Paragraph        minimal. Reader is referred to publications. From the available information, no determination can be made as to the distribution, flow direction, or quality of groundwater.

Page 2-19                We do not understand how the effect of heat during the

3rd Bullet               summer would cause groundwater to be present at depths of  
Last Paragraph        1.5 feet near the Operational Apron. The "evaporative pumping" can be responsible for capillary rise of deep groundwater into the vadose zone that may cause some increase in moisture. This moisture can usually be

detected with pressure/vacuum lysimeters, however, the establishment of wells that can pump water would suggest groundwater contribution from additional sources.

- Page 2-21  
3rd Paragraph CDM has not reviewed the Phase I study for this Base, therefore, we cannot comment on the methods of eliminating seven sites from Phase II. Our report only addresses investigations at the remaining four sites.
- Page 3-8  
1st Paragraph Reference is made to completion of wells on the basis of several considerations. None of these considerations included field screening information such as HNU or Draeger tube analyses.
- Page 3-8  
2nd Paragraph This paragraph indicates that no chemicals (e.g. TCE) were used that could modify water density or form a sinking phase. In contrast, page 1-3 (Waste Pits) indicates solvents were stored in an unlined pit. These solvents, we presume, could have been immiscible with water and heavier than water. Unless the type of solvents are known, it is not possible to dismiss a "sinking" phase. Analytical data across the base indicates solvents that are heavier than water (TCA) have been found in groundwater.
- Page 3-12  
3rd Paragraph Purging was reportedly done with a 0.35 gallon bailer. In Appendix E, the bailer is noted to have a 0.28 gallon capacity. What capacity was used to calculate the number of casing volumes that were evacuated.
- Page 3-13  
Sample Culture Although not stated, we presume that the sample was collected with the same bailer used for purging. This should be noted. Also, were head space analyses performed on the well casing with an OVA or an HNU?

Page 3-14 Table 3-2	Why were metals not analyzed in the waste pit monitor wells? The pits contained waste solvents. These solvents probably came from degreasing machine parts and have a high potential for containing metals.
Page 3-14 Table 3-2	The landfill was reported to contain low-level radioactive waste. However, no analysis for radioactivity or radioactive nuclides was conducted.
Page 3-16 Section 3.1.8	No rationale was provided for the levels of protection at the site. Normally air concentrations are monitored, and then the protection level is determined.
Page 3-17 Section 3.2.1	<p>This paragraph indicates five coreholes were drilled at the waste pits. Figure 3-6 depicts three coreholes and two boreholes. What is the significance, if any, of the terminology?</p> <p>No wells were installed at this site. However, B-3 logs indicate a wet sand from 0-10 feet. This would have been an ideal location for a well. In contrast, the report indicates (page 3-19, second paragraph) that no groundwater was encountered. What is correct?</p>
Page 3-19 2nd Paragraph	The third location for a monitor well was not drilled because of no water in any other holes. Reference above comment for contradiction. Also, the report describes the geology as having discontinuous, perched groundwater zones. With this geology, it may have been better to attempt the third well.
Page 3-24 1st Paragraph	The use of wrapping filter fabric around a screen is not a good method of completion. Some filter fabrics can filter out (absorb) organics.

Page 4-7  
1st Paragraph "The pits were removed in the mid-1970's". Does this mean that the soils in the pits were removed or were the pits just covered? If soil was removed was it disposed at an off-site landfill, on-site landfill?

Page 4-8  
Figure 4-2 The surface water sampling scheme does not provide a good representation of surface water quality. There is a lack of sampling on Bear Creek. Samples should have been collected upstream of the unnamed creek and near the landfill area adjacent to the waste pits. The history of this landfill should also be discussed in order to help interpret water quality. For example, was it a sanitary, demolition, scrap iron, etc. landfill?

Page 4-10  
Figure 4-4 The area around Bear Creek has been reported as swampy. The location of the sands in Boring B-3 (previously described as wet) with the surface stream would indicate that the well should have been screened in the upper 10 feet.

Page 4-19  
Table 4-7 There is a large variation in TDS concentrations from December to February sampling events. The results may be correlated to precipitation. Rain may have diluted landfill leachate and reduced TDS concentrations. Precipitation data for these periods should be analyzed.

Page 4-22  
1st Paragraph Organic contaminants were found in surface water during one sampling event. It is advisable to determine if the organics were from "slug" releases upstream or possibly from remobilization of organics in the sediment. Analyses of sediment would help in this determination.

Page 4-22  
1st Paragraph The last sentence probably refers to deeper groundwater supplies because studies have not been done in the shallow discontinuous aquifers. This statement on mineralization should not be used to support the absence of contamination.

Page 4-24  
1st Paragraph      The total dissolved solids (TDS) could be natural or from the landfill. To determine the source, analyses of major anions and cations would be required. If calcium and carbonates are high, the source is probably natural. If nitrates, chlorides, and sodium comprise the majority of ions, the landfills should be suspected as the source.

Page 4-24  
3rd Paragraph      In the discussion on topography, it appears that the landfill boundaries are distinct. However, later in the report there are references that indicate geophysics could not even determine the boundaries of the landfill and the edges are unknown.

Page 4-37  
2nd Paragraph      The sands were reported to be discontinuous. Also, the presence of the adjacent stream is probably the source of water in the boreholes. Therefore, an additional monitor well would not aid in determining flow direction and gradients.

Page 4-37  
Last Paragraph      The explanation of freon may be true, however, the sampling points should be resampled and a trip blank submitted to ensure freon is not present.

Page 4-38  
1st Paragraph      There appears to be no basis for the statement that urban runoff and not the landfill is the cause of high TDS values. Additional samples, correlation with precipitation data, and an expanded parameter list are needed to make this determination.

Page 4-38  
2nd Paragraph      There is little significance in that mercury is twice as high in MW-4 than MW-7. At these low concentrations, near the detection limit of the instruments, these numbers are very similar. Unless the groundwater samples were not filtered prior to preservation it appears that the mercury is from the landfill. Mercury present in clay typically is not soluble under normal oxidation-reduction conditions.



Page 4-47  
Figure 4-20 If the surface water in the evaporation pond is connected with the groundwater as depicted in Figure 4-19, concentric groundwater contours should emanate from the ponds. If Figure 4-20 is correct, it appears none of the wells were placed in locations to detect leakage from the evaporation ponds.

Page 4-57  
1st Paragraph The paragraph states that geophysical evaluation indicates that subsurface contamination exists. If this is true, and the well installation program was guided by geophysics, why were no wells placed in the anomolous area?

Page 4-67  
1st Paragraph Analysis of partition coefficients indicates that freon would not tend to absorb on the soils. Because of this fact, it was probably introduced in the laboratory. However, the high concentrations of oil and grease may have also carried the freon in the soil matrix. Conclusive evidence is needed and additional sampling should be recommended.

Page 4-70  
3rd Paragraph Reference is made to Table 4-15 for organic compounds in MW-11. There is no MW-11 data on this page. The explanation that organics are from drinking water on base should be supported with base drinking water data.

Page 5-1  
4th Paragraph No further activities at the waste pit were recommended, however, on page 5-1 (1st paragraph) the report states that the waste pits have the potential to impact the creek. This appears to be a contradiction. CDM agrees with later suggestions for more surface water monitoring. Although contaminants were detected in the subsurface (especially at C-1), no recommendation is made concerning further investigations. Will a feasibility study be performed later?

Page 5-2            There is no definitive recommendation in this section. CDM  
and 5-3            feels that additional sampling is needed. The clayey  
Section 5.2        nature of the soil would better be sampled for groundwater  
by using near surface lysimeters to determine pore-liquid  
content close to the sites. CDM also recommends radio-  
activity analyses for the radioactive waste disposal site.  
Since geophysics did not work to locate the landfill boun-  
daries, aerial photographic review is recommended.

Page 5-4            Contaminants in the upgradient well suggest that the source  
2nd Paragraph      area is from another location. Therefore, the Phase I  
report may have missed an old disposal site. Further  
investigations should focus on finding these sources.  
Prior to these field investigations, aerial photographs  
should be reinvestigated.

Page 8              Why were no soil samples tested at Landfill Area No. 3?  
Table 1            Why were the FPTA soils only tested for toxicity and  
ignitability? The rationale should be explained.

**CAMP DRESSER & MCKEE INC.**

**7630 LITTLE RIVER TURNPIKE**

**SUITE 500**

**ANNANDALE, VIRGINIA 22003**

**703 642-5500**